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(54) **Solid state imager having gated photodiodes and method for making same**

(57) A solid state imager is provided that comprises an imaging array of gated photodiodes. The imager comprises a plurality of photosensor pixels arranged in a pixel array, and each of the photosensor pixels includes a photodiode having a sidewall, the sidewall having a gate dielectric layer disposed thereon, and a field plate disposed around the photodiode body. The field plate comprises amorphous silicon disposed on the gate

dielectric layer and extends substantially completely around the sidewall of said photodiode. The field plate is electrically coupled to the common electrode of the imaging array so that the field plate creates an electric field around the photodiode body in correspondence with the potential of said common electrode. A method of fabricating the gated photodiode array is also provided.

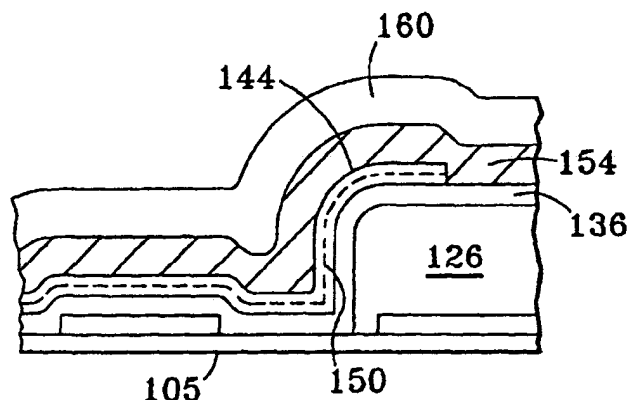


FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 6424

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
D,A	US 5 480 810 A (KWASNICK ROBERT F ET AL) 2 January 1996 (1996-01-02) * abstract; figures 1A-1F *	1,5,8	H01L27/146 H01L31/0224
A	US 4 327 291 A (CHAPMAN RICHARD A ET AL) 27 April 1982 (1982-04-27) * abstract *	1,5,8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H01L H04N
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 2 July 2003	Examiner Cabrita, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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02-07-2003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5480810	A	02-01-1996	US	5435608 A	25-07-1995
<hr/>					
US 4327291	A	27-04-1982	EP	0044610 A2	27-01-1982
			JP	1802348 C	26-11-1993
			JP	5006353 B	26-01-1993
			JP	57030468 A	18-02-1982
<hr/>					

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